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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)	
MAT-8856US	
Application Number	**Filed**
10/586,173	July 17, 2006
First Named Inventor	
Hirotaka KAWABATA et al.	
Art Unit	**Examiner**
3746	Christopher S. Bobish

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.7.1 Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☒ attorney or agent of record.
Registration number **34,515**

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

Signature

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December 2, 2011
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No:	10/586,173
Applicants:	Hirotaka KAWABATA et al.
Filed:	July 17, 2006
Title:	REFRIGERANT COMPRESSOR
T.C./A.U.:	3746
Examiner:	Christopher S. Bobish
Confirmation No.:	2828
Docket No.:	MAT-8856US

REASONS FOR REQUEST FOR PRE-APPEAL BRIEF REVIEW

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Along with the herewith filed Notice of Appeal, Applicants request review of the Final Office Action dated October 4, 2011, in view of the following reasons.

Applicants respectfully submit that the Final Office Action made errors in fact and/or law, as explained in detail below.

Claims 1, 3 and 5 stand rejected under 35 U.S. 103(a) as being unpatentable over Kwon et al. (US 7,404,701; "the Kwon reference") in view of Ponsford et al. (US 5,799,626; "the Ponsford reference") and further in view of Kim et al. (US 4,101,414; "the Kim reference").

As noted by Applicants in the previous Amendment dated August 4, 2011, none of the references suggest the selection of a blended oil containing components having the characteristics recited in claim 1 ("a first component oil includes a first characteristic having a boiling point at 350°C or over which is not less than 10% and not higher than 30% in volume ratio, and a second component oil includes a characteristic having a boiling point at 300°C or less which is not less than 50% and not higher than 70% in volume ratio"). Making such a selection leads to reduced

formation of sludge derived from polyethylene terephthalate (PET) when the refrigerant compressor is operated.

In response to this argument by Applicants, the Examiner relies on the Kwon reference and argues that such selection would have been "routine" (and thus obvious):

> The Kwon reference further teaches that reducing sludge caused by the high temperature interaction between organic material metals and the lubricant is a known motivation in the compressor art, and further lists viscosity as a critical factor (C. 2 Lines 15-34). One of ordinary skill would find it routine to choose viscosity and temperature values within optimal ranges to reduce the formation of sludge.

Applicants respectfully submit that this argument is factually and/or legally deficient.

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

The particular section of the Kwon reference cited by the Examiner (column 2, lines 15-34) is very general and simply lists a number of characteristics of a lubricant that may possibly influence the generation of carbon sludge. It does not refer to a direct relationship between the viscosity of the oil and the generation of sludge. In addition, the Kwon reference does not contain any disclosure regarding a possible relationship between the amount of the oil that has a boiling point of 350°C or higher and sludge generation, or between the amount of oil that has a boiling point of 300°C or less and sludge generation. The boiling point characteristics of the oil are not mentioned at all in the Kwon reference. The Kwon reference does not teach or suggest that the boiling point profile of an oil might possibly affect the tendency of the oil to generate sludge. A skilled person therefore could not have had any reasonable expectation, based on the Kwon reference, that varying the boiling point properties of an oil would result in improvements in sludge generation.

The experimental data in Table 1 on page 12 of the present application confirms the importance of at least 10% of the oil having a boiling point of 350°C or greater. The first oil listed in the Table contained only 5% of a component with a boiling point of 350°C or greater and resulted in sludge generation. In contrast, no sludge generation was observed when the other oils listed in Table 1 (containing 12 or 20% of a component boiling at 350°C or greater) were used. These data demonstrate the criticality of the boiling point properties of the oil.

Applicants further note that the sludge being referred to by the Kwon reference is the "carbon sludge" that is generated by thermal decomposition of the lubricant. In contrast, the sludge generation problem which is addressed by Applicants' invention is the result of the deposition of oligomeric polyethylene terephthalate (PET) that is extracted from the electric motor or other components of the refrigerant compressor into the lubricant. The disclosure of the Kwon reference thus would not be considered by an ordinarily skilled person to be relevant to the different type of sludge issue addressed by Applicants' invention.

In the previous Amendment dated August 4, 2011, Applicants pointed out the following deficiencies of the Ponsford reference:

> [T]he oil employed in the Ponsford reference is a so-called "styrene oil" and thus is a very special oil, as compared with conventional mineral oil. As shown in Figure 1 of the Ponsford reference, the styrene oil contains a mixture of styrene dimer and styrene trimer (column 5, lines 51-54). Thus, a "natural styrene oil" and a synthetic styrene oil can be mixed in any ratio, since they have very similar chemical compositions. The results obtained from such a mixture of styrene oils cannot be generalized to mineral oils in general. In other words, even if the oils of the Ponsford reference can be mixed in any ratio, this cannot be extrapolated to apply to oils in general.

In the Final Office Action, the Examiner responded to this point as follows:

> Applicants argue that the oil taught by Ponsford is a special oil and cannot be extrapolated to apply to other oils. However, even if this is true, it does not preclude the oil taught by Ponsford from being used as a compressor lubricant in place of, or in combination with other oils. The rejection as presented does not require the characteristics of the oil to be extrapolated onto other oils in the art.

The Examiner's analysis is factually deficient. Organic chemicals, including oils in general, can have almost infinite kinds of chemical structures. The chemical and physical characteristics of organic chemicals such as oils thus vary quite significantly, depending upon their chemical structure. Therefore, the extrapolation of the features of one chemical to another chemical is not possible. In the case of the present application, the chemical and physical characteristics of a mineral oil having a linear chain structure are completely different from those of a styrene oil, which includes an aromatic ring structure, of the type taught in the Ponsford reference. Generally speaking, aromatic oils have high viscosities in comparison with mineral oils and thus are not preferred for use in the presently claimed invention. Moreover, the oil described in the Ponsford reference is not used for lubrication purposes, but rather as a high temperature heat transfer medium. As such, according to the Ponsford reference (column 9, lines 50-55), the styrene oil should have high thermal stability, low moisture inclusion, low rust generation when in contact with iron pipes, and, finally, good miscibility with conventional heat transfer oil. However, good miscibility with aromatic oils does not mean good miscibility with mineral oils.

In the previous Amendment dated August 4, 2011, Applicants also pointed out the following additional deficiencies of the Ponsford reference:

> [W]hile it is true that the Ponsford reference compares the oil which is obtained with diesel oil, only the "appearance" is compared (column 5, lines 24-26). The viscosities of the oils are never directly and quantitatively compared. Therefore, even if diesel oil has a viscosity between V3 and V8, this does not mean that the blended oil of the Ponsford reference necessarily also has a viscosity of V3 to V8.

In the Final Office Action, the Examiner responded to this point as follows:

> However, C5, Lines 24-30 of Ponsford also discloses that the viscosity is similar to light oils (i.e. diesel oil) and the Kim reference provided with the rejection teaches diesel oil having a viscosity within the claimed range.

This analysis is factually deficient. The Ponsford reference discloses, at column 5, lines 28-29, that "It [the styrene oil] is roughly similar to light oils in viscosity and boiling points." This passage must be interpreted and understood in the context of the previous passage in the Ponsford reference that states: "and physically resembles

diesel oil in appearance." Thus, the reference only discloses that the viscosity of the oil resembles the viscosity of diesel oil "in appearance." The Ponsford reference therefore fails to teach the actual viscosity of the oil. Applicants' claims recite and define specific viscosity values. The Ponsford reference fails to teach or suggest these values; rather, it vaguely characterizes the viscosity using the expression "roughly similar to." A person ordinarily skilled in the art could not differentiate between an oil with a viscosity value of ISO VG8 and an oil with a viscosity value of ISO VG9 based on "appearance" alone. Such person therefore would not, for example, have found it obvious from the Ponsford reference to select a blended oil having a viscosity grade not higher than ISO VG8, as recited in Applicants' claim 1.

In view of the foregoing discussion of the deficiencies of the rejections set forth in the Final Office Action of October 4, 2011, Applicants respectfully request that such rejections be withdrawn and that the application be passed to issuance.

Respectfully submitted,

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